

## Anxiety Measurements among Dental Students undergoing Third Molar Removal



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### **Abstract**

**Background and objective:** This study was conducted to quantify the anxiety associated with third molar extraction in dental students. And to compare the anxiety levels between males and females, among impacted and non-impacted groups.

**Methods:** The study included 100 dental students who reported to Department of Oral and Maxillofacial Surgery, College of Dental Sciences, requiring mandibular third molar removal. Only those patients who met the inclusion and exclusion criteria were selected. The anxiety levels were evaluated based on the scores of the Corah's Dental Anxiety Scale.

**Results:** Results showed scores among female patients was higher than males; however the difference between male and female patients was statistically not significant. Among impacted and non-impacted groups score was higher among the impacted group, but the difference between impacted and non-impacted groups was statistically not significant too.

**Conclusion:** To conclude, maxillofacial surgeons should consider patients who visit dental offices for third molar impaction surgery as most prone to anxiety which could either result from conditioning or learned responses from their peers. Noteworthy, prior awareness of the patient's psychologic makeup and susceptibility to anxiety may be of value, thus enabling appropriate therapy and improved recovery postoperatively.

**Introduction** In the past half-century, remarkable advances in dental technology, anesthesia and surgery have made it possible to perform procedures with greater precision, predictability, speed and safety and often without pain. However, despite these advances, a

common problem that still faces oral and maxillofacial surgeons as it did centuries ago is patient fear and anxiety regarding pain and discomfort associated with the treatment. Therefore, the comprehensive management of pre-operative, intra-operative, and post-operative pain and anxiety is a major challenge faced by practitioners on a day-to-day basis. This is of prime concern because of formidable obstacles and difficulties inherent in the performance of intricate procedures on patients whose actions that can range from co-operative to obstructive.<sup>1</sup>

Anxiety related to extraction of third molar is a fairly common phenomenon. It is a problem in oral surgery and a notable factor in the avoidance of surgery.<sup>2</sup> Dental anxiety is generally considered to have origin in childhood and develop as a result of aversive conditioning and family influences.<sup>3</sup> Dental anxiety is most commonly provoked by treatments involving anesthetic injection and usage of the drill for tooth removal. In accordance with this, removal of a lower third molar commonly provokes anxiety. Diverse factors have been implicated in the etiology of dental anxiety including congenital determinants, trauma and the experiences of family and peers<sup>4</sup>. Little has been delved into as regards patients' anxieties about third molar surgery despite its widespread practice. The complete preoperative assessment of procedure-related anxiety is required to be documented in the form of a questionnaire.<sup>5</sup> Reassurance and adequate pain control are the most important in surgical practice and hence are to be instituted from the very first visit of the patient lest it would be difficult to provide meaningful responses without adequate explanation.<sup>5</sup> Dental anxiety may be specific to dental context, or a manifestation of a more general state of anxiety<sup>4</sup>. Our analysis aims at assessing anxiety levels in dental students

### **Inclusion criteria**

1. Dental students who require mandibular third molar odontectomy.
2. Routine haemogram revealing no abnormal values.

### **Exclusion criteria**

1. Medically compromised patients.
2. Patients who refused treatment.

The following questionnaire was given preoperatively to students who reported for treatment.

### **Questionnaire**

#### **ANXIETY QUESTIONNAIRE (Corah's Dental Anxiety Scale):**

**1. If you have to go to the dentist tomorrow how would you feel about it?**

- a. I would look forward to it as a reasonably enjoyable experience
- b. I would not care one way or the other
- c. I would be very uneasy about it
- d. I would be afraid that it would be unpleasant and painful
- e. I would be frightened of what the dentist might do

**2. When you are waiting in the dentist's office for your turn in the chair, how would you feel?**

- a. Relaxed
- b. A little uneasy
- c. Tense
- d. Anxious
- e. So anxious that I sometimes sweat or almost feel physically sick.

**3. When you are in the dentists chair to have your tooth removed while you are waiting and the dentist is getting out the instruments, how would you feel?**

- a. Relaxed
- b. A little uneasy
- c. Tense
- d. Anxious
- e. So anxious that I sometimes break out in a sweat or almost feel physically sick.

**4. When you are in the dentists chair waiting for dentist to get the drill ready and begin working on your tooth, how would you feel?**

- a. Relaxed
- b. A little uneasy
- c. Tense
- d. Anxious
- e. So anxious that I sometimes break out in a sweat or almost feel physically sick.

**5. In general, would you feel uncomfortable or nervous about the tooth being removed?**

- a. Yes
- b. No

**Score:** Answers to individual questions are scored 1 through 5 (with "a" as 1 and "e" as 5). The maximum possible score is 20. Scores of 8 or above indicate higher than normal levels.

**Scale:** 5 to 10 – slightly anxious

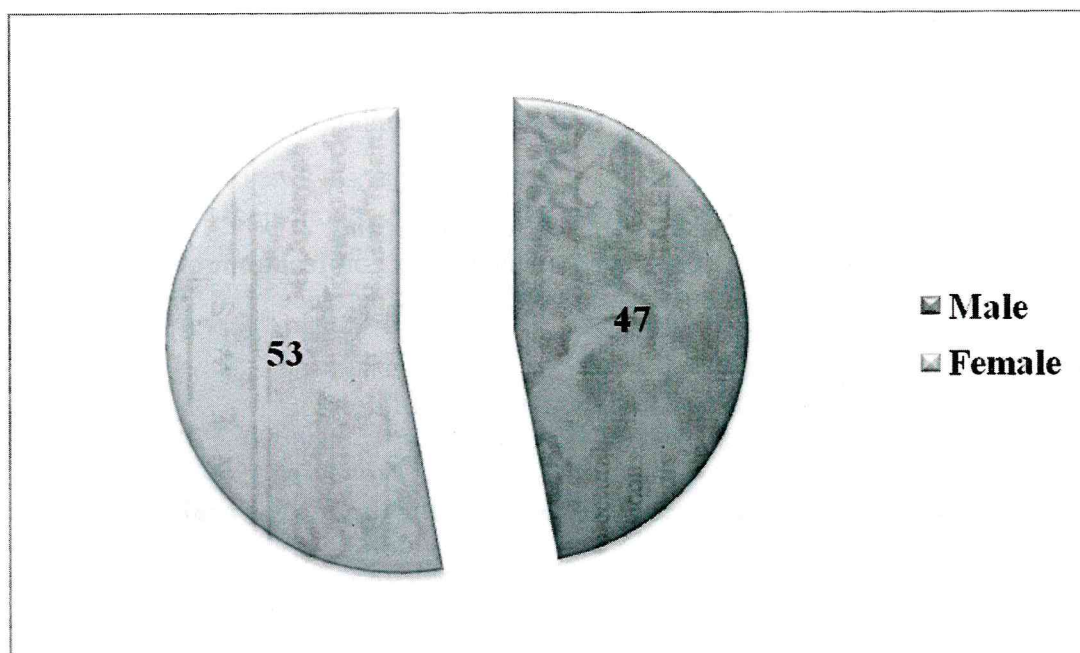
10 to 15 – moderately anxious

15 to 20 – severely anxious

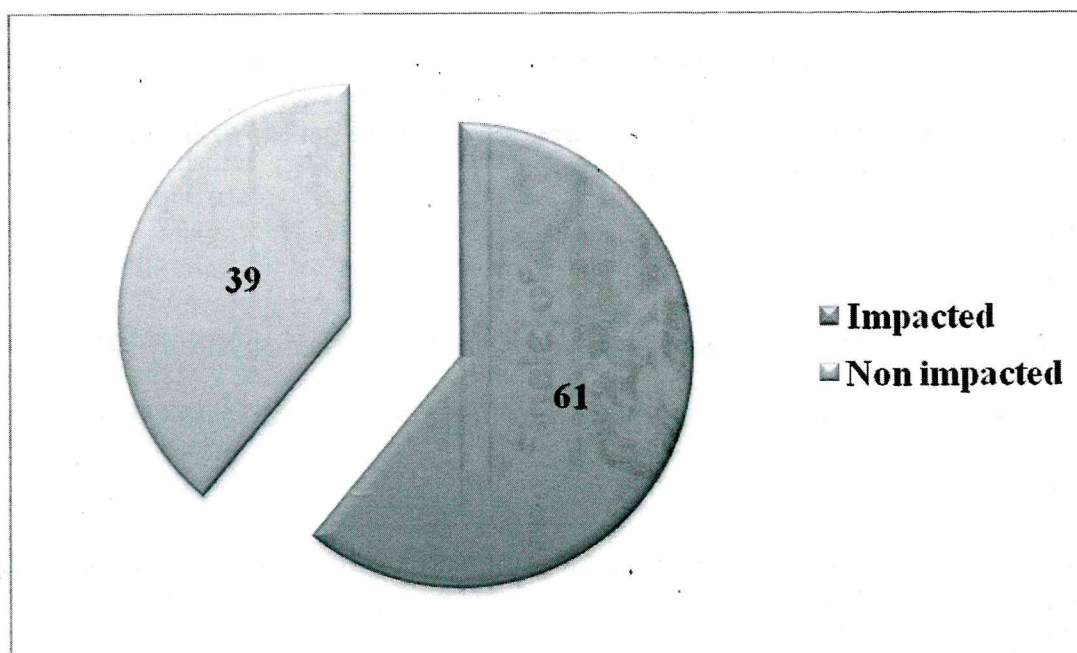


**Results:**

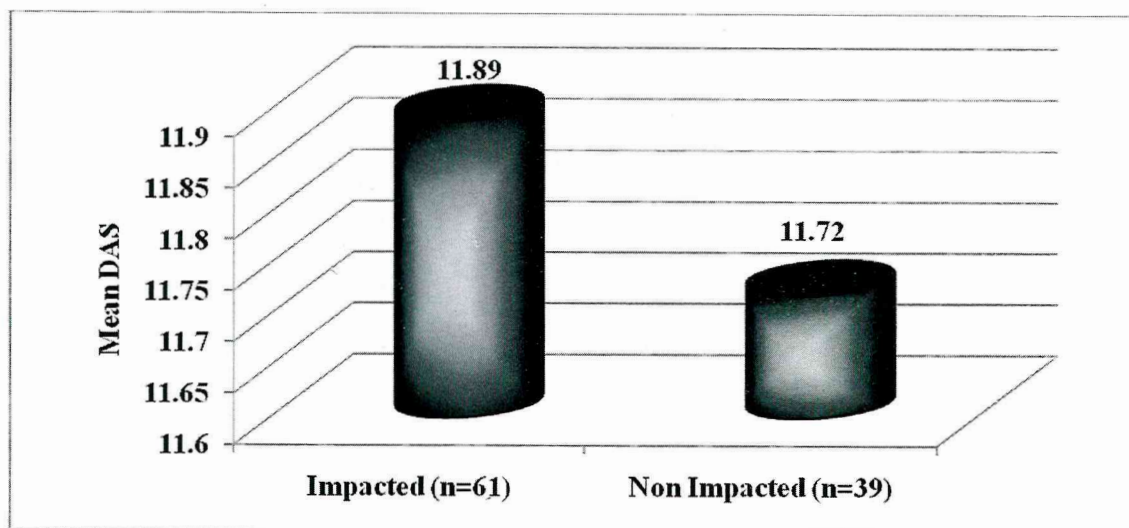
**GRAPH-1: Gender wise distribution of the patients**



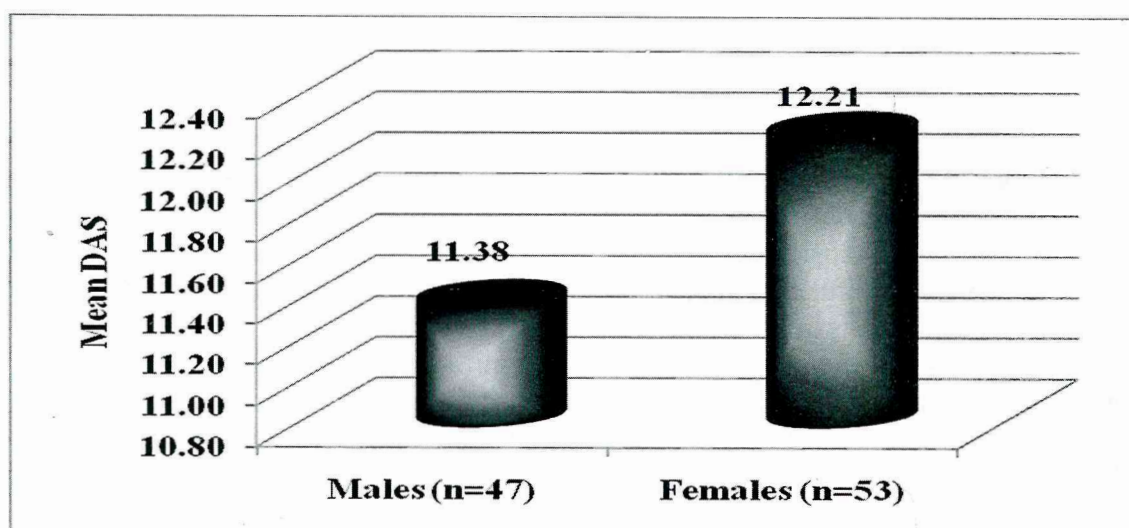
**GRAPH-2: Distribution of the study population according to impacted and non-impacted third molars**



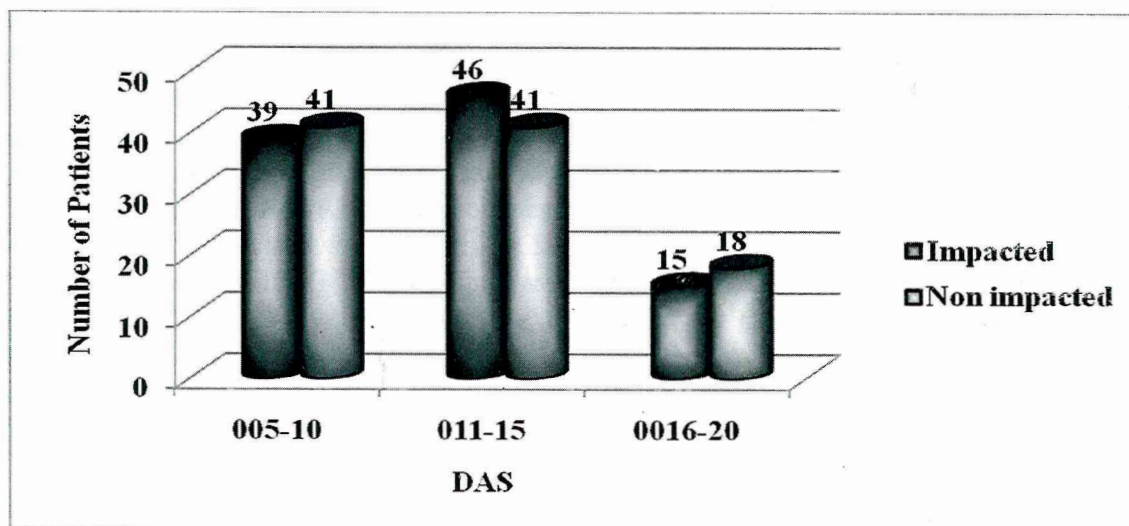
**GRAPH-3: Median, mean and standard deviation of DAS in impacted and non-impacted third molars**



**GRAPH-4: Median, mean and standard deviation of DAS in male and female patients**

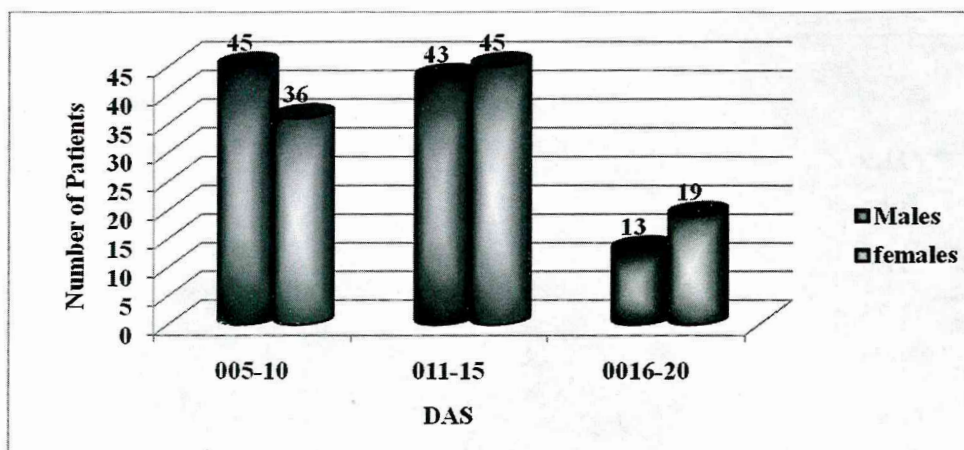


**Graph 5: Comparison of impacted and non-impacted third molars according to DAS**





Graph 6: Comparison of male and female patients according to DAS



### Discussion

Fear and anxiety seem inseparable. Fear, by definition, is an emotional, physiological, and behavioral response to a recognized external threat. Anxiety, by definition, is an unpleasant emotional state, the causes of which are less clear.<sup>26</sup> Although anesthetics make dental treatment painless and easier to deliver, having such an operation arouses patient's fears and often results in great anxiety.<sup>2</sup> It is now known that fear, anxiety and apprehension only serve to heighten an individual's painful experience. The assessment of dental anxiety is important for two reasons: first, to assist the dentist in the management of anxious patients and second, to provide evidence-based research into psychological construct which has been shown to predict dental avoidance. The intensity of dental anxiety is different among certain groups in population. Several studies have shown that younger group people, people with low income or socioeconomic status, and people with lower levels of education tend to have more severe dental anxiety than people who are elderly, more affluent, or better educated.<sup>2</sup> Many different scales, such as Corah's Dental Anxiety Scale, Kleinknecht's Dental Fear Survey, Spielberger's State-Trait Anxiety Inventory, Litt's Oral surgery Confidence Questionnaire, Gale's ranking questionnaire, Stouthard's dental anxiety inventory, Weiner's fear questionnaire, Morin's adolescents fear of dental treatment cognitive inventory, the Visual Analog Scale, and the Original Questionnaire, have been used to qualitatively or quantitatively measure dental

anxiety.<sup>14</sup> But not much has been studied of patients' anxieties about the treatment despite its widespread practice.<sup>5</sup>

Pain and anxiety control involve the application of various physical, chemical, and psychologic modalities aimed at preventing and treating pre, intra, and postoperative patient anxiety pain. Thus far, the efficacy and safety of these techniques as implemented by trained surgeons and dentists have been outstanding. This thrust, in conjunction with an expanding need for anxiety and pain control in ambulatory settings, has led a number of professional and organizations to formulate and publish policies and guidelines for pain and anxiety control in patients.<sup>21</sup> The professional organizations that have developed policies and guidelines for the use of sedatives and anesthetics in dental and hospital settings include the American Dental Association, the American Association of Oral and Maxillofacial Surgeons, the American Academy of Pediatrics, World Health Organization, and the Agency for Health Care Policy and Research.<sup>21</sup> A study by Peretz B and Efrat J concluded that the Corah's Dental Anxiety Scale (DAS), consists of commonly applied questionnaires.<sup>21</sup> According to Corah Norman et al all old and new data were considered in an evaluation of the Corah Dental anxiety Scale. It was found that the DAS is reliable, valid, and a useful predictor of patient's anxiety before treatment, thereby helping the clinician in two ways. One, he becomes awareness patients expectancy, and two, to adopt measures to help alleviate patient anxiety.<sup>8</sup>



The Yusa H et al study included 108 Japanese university students of whom 71 were men and 37 women who filled out STAI on day 1, 2 and 3; they neither had previous experience with third molar odontectomy nor knowledge of surgery. The score showed no significant difference between days 1 and 2 but the score on day 3 was lower than that on day 1. Women showed more anxiety state on day 2 than men. There was no significant difference in the anxiety between impacted and non-impacted groups. Positive correlations were also observed in our study as dental anxiety was greatest among patients who visited for first time and lower among those who routinely visited for preventive care; female scores were higher than male. However there was no significant difference in the anxiety scores between the impacted and non-impacted groups, suggesting that the extraction itself caused anxiety in patients/students. A study was conducted by Thomson et al to know the incidence of dental anxiety among individuals aged 18 years at baseline and 26 years at follow-up and to determine if dental treatment experience continued to play a significant etiological role with respect to the onset of dental anxiety in young adults. In conclusion, aversive conditioning experiences appear unrelated to the adult onset of dental anxiety and that particular temperamental or psychological traits may be associated with condition.<sup>3</sup> The mean age of the study population was 24 years and standard deviation was 3.17 years. The number of the patients between 16 to 20 years was 14, for 21 to 25 years, was 58, and for 25 to 30 years, was 28. A greater incidence of third molar removal was seen in the 21 to 25 years group, followed by 25 to 30 years group, with the least in 16 to 20 years slot.

D J Edwards et al in 1998 prospectively investigated into factors affecting the choice of anesthetic for 444 consecutive patients (153 male, 291 female, age range 15-85 yrs) listed for extraction of third molars; 272 were listed for treatment under general anesthesia, with 120 (44%) as in-patients and 152 (60%) as day cases. The remaining 144 (32%) patients were to be treated under local anesthesia and 28 (6%) with additional intravenous sedation. Logistic regression analysis demonstrated difficulty of surgery, patient's anxiety, patient's preferences, medical history, and number of teeth to be

removed as important predictors of choice of anesthetic. From an anesthetist's perspective, many patients should have been treated under local anesthesia with intravenous sedation and fewer should have been listed for inpatient extraction under general anesthesia.<sup>18</sup> All 100 patients investigated in our study were subjected to odontectomy under local anesthesia without intravenous sedation. Thus explaining why the patients showed higher levels of anxiety scores. A recent study by Liao F L et al on 180 adult patients scheduled to receive routine dental extraction under local anesthesia, measured anxiety at 15 minutes before local anesthetic delivery using Corah's Dental Anxiety Scale. Cardiovascular responses data including blood pressure, heart rate, oxygen saturation, and ECG changes were measured at 5 time points from 5 minutes before to 15 minutes after administration of anesthetic. Concluding that Corah's dental anxiety scale is a useful tool for estimating the impact of anxiety, and younger patients were more prone to having higher levels of anxiety. In our study, we too used Corah's Dental Anxiety Scale just before treatment. To conclude, the Scale is a reliable, valid and useful predictor of patient's anxiety preoperatively,

## Conclusion

Quantitatively and comparatively, anxiety was greatest among people who visited a dental office for first time than among those who routinely visited for preventive care. Females appeared more affected than males. However, there was no significant difference in the anxiety scores between impacted and non-impacted tooth groups, irrespective of sex, clearly suggesting that odontectomy in itself significantly induced anxiety. Imperative it may be to say that all oral and maxillofacial surgeons should consider patients who visit dental offices for third molar impaction surgery as the most prone to anxiety which either could result from conditioning or learned responses from their peers. Noteworthy, prior awareness of the patients' psychologic makeup and susceptibility to anxiety may be of value, thus, enabling effective therapy and improved recovery postoperatively



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